IN THE CLAIMS:

1. (Currently Amended) A process for producing compound semiconductor single crystal, comprising the steps of:

a) placing a compound semiconductor raw material into a crucible;

b) encapsulating the raw material;

c) setting the crucible in a vertical type of a heating furnace to heat the raw material;

d) melting the raw material;

e) promoting a nucleation on a top surface of a raw material melt ~~by leaving a solid raw material in a part of the raw material melt~~;

f) solidifying the raw material gradually from the surface of the raw material melt without a seed crystal; and

g) growing a crystal by using a nucleus generated by the nucleation,

wherein a solid raw material is left in a part of the raw material so as to prevent the raw material melt from being supercooled.

2. (Previously Presented) The process of claim 1, wherein the raw material is ZnTe or CdTe.

3. (Previously Presented) The process of claim 1, wherein B_2O_3 is used to encapsulate the raw material.

4. (Previously Presented) The process of claim 1, wherein nucleation occurs on a top surface of raw material melt.

5. (Withdrawn) A single crystal produced by the process comprising the following steps:

a) placing a compound semiconductor raw material into a crucible;

b) encapsulating the raw material;

c) setting the crucible in a vertical type of a heating furnace to heat the raw material;

d) melting the raw material;

e) promoting a nucleation on a surface of a raw material melt by leaving a solid raw material in a part of the raw material melt;

f) solidifying the raw material gradually from the surface of the raw material melt without a seed crystal; and

g) growing a crystal by using a nucleus generated by the nucleation.

6. (Withdrawn) The crystal of claim 5, wherein the raw material is ZnTe or CdTe.

7. (Withdrawn) The crystal of claim 5, wherein B_2O_3 is used to encapsulate the raw material.

8. (Withdrawn) The crystal of claim 5, wherein nucleation occurs on a top surface of raw material melt.

9. (Withdrawn) The crystal of claim 5, wherein the crystal has a diameter of 70 mm and a total length of 50 mm.

10. (Withdrawn) The crystal of claim 5, wherein the crystal has no twin or polycrystal.

11. (Previously Presented) The process of claim 1, wherein nucleation occurs on a surface adjacent to the raw material melt.

12. (Withdrawn) The crystal of claim 5, wherein nucleation occurs on a surface adjacent to the raw material melt.

13. (Previously Presented) The process of claim 1, wherein a temperature of the surface of the raw material melt is lower

than a temperature of other part of the raw material in the promoting step.

14. (New) The process of claim 3, wherein the top surface is a boundary between the raw material melt and the B_2O_3.

15. (New) The process of claim 1, wherein the solid raw material is left on the bottom of the crucible.

16. (New) The process of claim 1, wherein in the melting step, said raw material is caused to melt under conditions under which said raw material has a temperature distribution whereby a bottom-most portion of said raw material in said crucible is maintained in a solid state and the remaining portion is in the melt state.